Flight Manager – GS 15 - UNOFFICIAL

Core Requirements

As the Flight Manager, the incumbent is responsible for planning, organizing, and directing all aspects of the Project, spanning diverse disciplines, which are necessary for the successful development of the mission. The scientific measurements to be performed have been defined by the Office of Space Science and Applications. Major duties of the incumbent are.

1. He/she develops the overall plan for the definition and development of the Project. The flight includes the space system, instrument complement, applications software, and the complement of payload instruments. The plan includes cost, schedule, division and assignment of technical tasks, and all technical and management interfaces. Every effort is made to utilize existing standards and low-cost spacecraft and components. Power, weight, thermal, mechanical, command, control, flight data handling, and launch vehicle requirements are determined.

   The conceptual system design that is developed serves to demonstrate the feasibility of the proposed mission. From it, the incumbent derives essential information for the Office Management Plan, including risk assessment, cost estimates, make-or-buy recommendations, Office schedules and other information needed for approval and implementation of the later phases of system development.

2. The incumbent works with the Resource Analysis Office (RAO) of the Office of the Chief Financial Officer to develop an estimate of the resources required for implementation. Past experience, cost modeling, and economic office techniques are utilized.

3. He/she prepares all budgetary requirements for the office-funded elements of the flight; including mission-unique equipment, applications software, and integration and test hardware.

4. He/she is responsible for all decisions involved in the definition, development, integration, and testing of the Project. Directs technical analyses and engineering efforts, which will assure the mission, will meet all of its unique objectives. Experiences a high degree of originality and sound engineering judgment in decisions made for the program since these decisions, which are considered authoritative, are binding on GSFC, and if erroneous, could prove catastrophic to the Project mission objectives.

5. He/she prepares top-level schedule requirements for the spacecraft. Reviews detailed schedules developed by the contractor. Where necessary, prepares workaround plans to eliminate schedule conflicts. Responsible for ensuring that each subsystem is compatible with the top-level schedule.

6. He/she formulates requirements to be met by the mission contractors and instrument contractors and assures overall progress in meeting the requirements. Evaluates the work performed and procedures used by the mission and instrument contractors to determine progress in achieving the stated objective; and/or investigate areas in need of improvement and makes decisions involving the trade-off between schedule, cost, and technical performance.

7. He/she evaluates the mission contractor's, instrument contractor's, and support contractor's technical and cost performance by reviewing the Performance Measurement Systems (PMS) and forming conclusions based on his/her own technical and managerial knowledge and that of other Office members and the GSFC support staff. In conjunction with other Office personnel, the Flight Manager makes changes to the PMS to improve this system for use by the Office staff. If performance is inadequate, he/she must take steps with the mission contractor to correct it by directing changes. Evaluates performance for the purpose of determining award fee. Presents his/her findings to the Performance Evaluation Board (PEB) for their fee determination on the contractor's performance. Serves as technical consultant to the PEB.

8. He/she participates in the identification and resolution of critical and potential problem areas in the programmatic interfaces between the space systems, instruments, and other government-furnished equipment to make certain that the program requirements are met within cost and schedule constraints. Collaborates with other senior Office management personnel in the planning and review of all Office elements, which include spacecraft subsystems, ground data systems, instruments, and mission operations

9. He/she plans, organizes, directs, and controls the efforts of a GSFC team and other GSFC support contractors to aid in the design of the spacecraft and instruments. Negotiates with the GSFC Division Chiefs and Branch Heads for this support, coordinate the work between the mission contractor, support contractors, and the GSFC team and resolves disagreements among these groups.

10. He/she participates in the development of interface control documents and remains cognizant of the effects the spacecraft subsystems have on other systems, including interface requirements on the instruments. Responsible for assuring the proper performance of the Project as a complete system.

11. He/she determines the types of actions and activities needed to successfully carry out the flight development program and establishes policies for their implementation. Ascertains the variety of experience and skills necessary to perform the multifaceted tasks required to manage the mission contractor and other activities related to flight development.

12. He/she visits the contractor's plants and instrument contractors' plants to assess progress to evaluate technical and programmatic problems that may arise. Make decisions to redirect contractor efforts as necessary.

13. He/she prepares reports, which relate to flight development definition, progress, schedule, and costs. Represents the Office, GSFC, and the Agency on committees and in meetings as a recognized authority in the area of flight development.

14. He/she is responsible to his/her supervisor for assuring that other employees carry out their work assignments by performing the following tasks:

    - Distribute and balance the workload among employees in accordance with established work flow or job specialization, and assure timely accomplishment of work.

    - Instruct employees in specific tasks and job techniques and make available written instructions, reference materials, and supplies.

    - Give on-the-job training to new employees in accordance with established procedures and practices.

    - Maintain current knowledge and answer questions of other employees on procedures, policies, directives, etc., and obtain needed information or decisions from supervisor on problems that come up.

    - Check on work in progress, spot check, and review completed work to see that supervisor's instructions on work sequence, methods, procedures, and deadlines have been met.

    - Amend or reject work not meeting established standards, referring unusual situations to supervisor.

    - Report to supervisor on performance, progress, and training needs of employees.

    - Make "information suggestions" to supervisor as requested concerning promotion, reassignment, recognition, and personnel needs.

    - Make recommendations concerning performance appraisals of employees in the work unit as required by the supervisor.

Other Information

Knowledge Required by the Position

1. A degree in an appropriate field of engineering, physical science, or mathematics is required to apply the professional theories, practices, principles, and techniques of aerospace technology to plan, develop, and implement the flight design, fabrication, integration, and test.

2. A broad technical knowledge of the tasks, concepts, and techniques of spacecraft and science instrument fabrication; integration and test to direct the design, development, integration, test, and launch of the spacecraft.

3. Knowledge of the duties and responsibilities of a technical officer on large contracts with a major aerospace company; knowledge of cost control techniques such as performance measurement systems; knowledge of procurement regulations; skill in analyzing financial data to understand the cost status of the contract and budget for changes.

4. Knowledge of proposal evaluation techniques; skill in estimating manpower needs to accomplish tasks; technical knowledge in all spacecraft systems and subsystem; knowledge of techniques and skill in negotiating to evaluate proposed contract changes and negotiate such changes.

5. Knowledge of planning and scheduling techniques and systems such as PERT, Gantt, Office 2; skill in evaluating a schedule for realism to plan, and evaluating the contractor's plan for developing and launching the spacecraft on schedule.

6. Skill in directing large diverse groups of companies and people such as the spacecraft mission contractor, support contractors, and GSFC engineers. Skill in resolving conflicts, delegating tasks, and assigning responsibility to coordinate the work of all the groups contributing to the development of the spacecraft. Skill in managing many different problems simultaneously.

7. Ability to work with discipline managers and independently provides the direction to technical experts as they perform their duties in support of the spacecraft development, integration, test, launch, and operations.

8. Skill in communicating orally and in writing to provide briefings, status reviews, resource requirements to Office and to higher management.

9. Ability to lead the effort of a group of professional engineers.

Supervisory Controls

The Flight Manager receives direction from the Office Manager in terms of broadly defined mission objectives, budgetary allocations, and a general schedule.

Assignments are primarily self-conceived and initiated and the incumbent may alter approaches and concepts as the program progresses. The incumbent's decisions and judgments have a far-

reaching effect on the success of the mission and are accepted as authoritative within and outside of the Agency.

Work is viewed in terms of meeting policy and programmatic objectives. Supervision is of an administrative nature.

Guidelines
The Flight Manager receives guidelines in the form of mission objectives and NASA's policies, and specific guidelines relating to budgetary and schedule restraints.

The incumbent interprets the broad objectives and as a recognized authority in the area of spacecraft development is free to use his/her own judgment to formulate specific requirements and to develop detailed cost, schedule, and technical plans. His/her product is a budgetary allocation by fiscal year, including a contractor performance measurement system; a set of plans for the day-to-day activities; a set of integration, test, and launch procedures; and a set of post-launch operational plans and procedures.

Complexity
The complement of two or more instruments with their diverse alignment, thermal, and structural requirements, the development and integration of the spacecraft and instruments, and the launch vehicle interfaces make the Project a complex spacecraft. The instruments are GFE and are being developed by various NASA, industry, and foreign agencies. Due to the interactive nature of the spacecraft design and the potential for change in the interfacing of the instrument, programmatic decisions to be made by the Flight Manager will be both complex and critical for success of the mission.

The Flight Manager must plan and organize information that is largely undefined. Decisions are made on cost, schedule, and technical risk. Schedule/risk trades are made across interfaces between science instruments, mission contractor, and support contractors. He/she must resolve technical and management difference of opinion between experienced industrial and government managers. This requires an in-depth understanding of the technical factors involved, the management methods for costing and manpower allocation, program objectives, and policies. Skill in managing many different problems simultaneously is required.

Scope and Effect
The purpose of this position is to provide a source of technical expertise in the design, development, integration, test, and operation of the spacecraft. The incumbent directs and coordinates several diverse disciplines during the design, development, and integration phases of this effort. By providing expert advice, counsel, guidance and direction to key NASA officials, managers, and engineers (both within and outside the Center), and the incumbent influences the policies of NASA, other government agencies, and foreign participants. Results of this activity have a direct and long-term effect on NASA's ability to achieve mission objectives, which impact

a large user community on both a national and international level and expand our knowledge of the earth as a system.

Personal Contacts

The Flight Manager has daily personal contact with the members of the Project Office Staff as well as discipline support personnel from the various GSFC codes that are part of the program. He/she will also have daily contact with the senior managers and technical staff at the industrial contractor's plant. He/she will have frequent contact with Division Chiefs and Branch Heads at the GSFC and various senior technical and management personnel at other NASA Centers. The Flight Manager will have contact with the senior management at GSFC (Directors of), with Division Managers of NASA Headquarters, and with senior scientists and managers from U.S. and European institutions on an as-needed basis. The contacts occur in a variety of settings and context requiring an in-depth understanding of technical and managerial factors, which impact the successful accomplishment of the mission.

Purpose of Contacts

Purpose of the contacts is to provide leadership, management, technical direction, and guidance in planning and implementing the Project systems and to justify, negotiate, and settle matters involving significant or controversial technical and programmatic issues. These issues are usually varying and potentially have a large impact; requiring the incumbent to achieve satisfactory results relative to objectives of the efforts of contractors, other government and foreign agencies, good working relationships with national and international participants through consultation, advice, mutual discussion and conferences to identify areas of common development and to monitor common progress. Coordinates requirements and resolves conflicting, technical views arising from Joint Working Groups involving other U.S. government agencies and foreign participants. Supports international meetings--both management and technical in nature.

Physical Demands

Typical engineering and management work is required. This includes working at a desk, attendance at meetings and conferences at GSFC, NASA Headquarters, etc. Significant domestic travel is required. No special physical demands are required.

Work Environment

During the design phase, the normal work environment involves normal safety precautions typical of such places as offices, meeting rooms, and laboratories. During the integration, test, and launch phases, work involves longer hours at moderate risk, which requires special safety precautions.